UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,149	08/06/2001	Steven C. Tankersley	P4839-001	8984

24112 7590 02/20/2004

COATS & BENNETT, PLLC
P O BOX 5
RALEIGH, NC 27602

EXAMINER	
KIKNADZE, IRAKLI	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 02/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/923,149	TANKERSLEY, STEVEN C.	
	Examiner	Art Unit	
	Irakli Kiknadze	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18 and 20-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18 and 20-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. In response to the office action of July 10, 2003 the Amendment has been received on October 14, 2003.

Claims 10 and 17 have been amended.

Claim 19 has been canceled.

Claims 21 and 22 have been added.

Claims 1-18 and 20-22 are currently pending in this application.

Response to Arguments

2. Applicant's arguments, see pages 7-10, filed October 14, 2003, with respect to the rejection(s)of claim(s) 17 and 19 under 35 U.S.C. 102 (e) by Polkus et al. (US Patent 6,435,716 B1) and the rejection(s)of claim(s) 10, 11 and 15-20 under 35 U.S.C. 103 (a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Hinton et al. (US Patent 5,485,502) in view of Badano et al. (US patent 6,167,292).

The indicated allowability of claims 1-9 is withdrawn in view of the newly discovered reference(s) to Hinton et al. (US Patent 5,485,502) in view of Badano et al. (US patent 6,167,292). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinton et al. (US Patent 5,485,502) in view of Badano et al. (US patent 6,167,292).

With response to claims 1, 8, 17, 18 and 20, Hinton teaches a radiographic imager (Figs. 2 and 5) having one or more ultrasonic transducers (57) incorporated into an X-ray radiation source (44) and an X-ray image receptor (detector array 50) to detect distance between surfaces associated with the source and receptor and another surfaces during operation of the radiographic system (10) (column12; lines 47-64). Hinton does not detail operation of the distance detectors and is silent about determining the travel time of a radiated signal between the X-ray source and the image receptor, and thereby determine the distance between the X-ray source and the image receptor. Badano teaches operation of typical ultrasound range finders which measure the travel time between an ultrasound emitter and an ultrasound receiver, thereby making it possible to calculate the distance traveled, given the propagation speed of ultrasound in air (column 2; lines 47-54). It would have been obvious to one of ordinary skill in art at the time of the invention was made to employ distance measuring

teachings of Badano in the radiographic imager of Hilton since this is how ultrasonic distance sensors work.

With respect to claims 2, 4, 18 and 20, Badano teaches (Fig.7) that radiated signal is ultrasonic signal projected from the radiated signal source (48) to the detector (32a) in a straight line allowing determining the distance by multiplying the propagation speed of the radiated signal by the travel time of the radiated signal (column 2; lines 47-54).

With respect to claim 3, Badano teaches that the numerous emitters and receivers make it possible, by triangulation calculations, to perform three-dimensional measurements (column 2; lines 47-54) that would allowing determine distance between the two selected points with the reflected signal.

With respect to claims 5, 6 and 9, Badano teaches (Fig.7) a display (76) connected to a computer (72) that would allow displaying and continuously updating the distance between the two selected points.

With respect to claim 7, Badano teaches (Fig.7) a power source (44) connected to the computer (72) and the radiated signal source (48) that would allow radiated signal source (48) be placed in an operative state or an inoperative state responsive to control signals from computer (72).

With response to claims 10 and 12, Hinton teaches a radiographic imager (Figs. 2 and 5) having one or more ultrasonic transducers (57) incorporated into a collimator housing containing an X-ray radiation source (44) and an X-ray image receptor

(detector array 50) to detect distance between surfaces associated with the source and receptor and another surfaces during operation of the radiographic system (10) (column12; lines 47-64). Hinton does not detail operation of the distance detectors and is silent about determining the travel time of a radiated signal between the X-ray source and the image receptor, and thereby determine the distance between the collimator housing containing the X-ray source and the image receptor. Badano teaches operation of typical ultrasound range finders which measure the travel time between an ultrasound emitter and an ultrasound receiver, thereby making it possible to calculate the distance traveled, given the propagation speed of ultrasound in air (column 2; lines 47-54). It would have been obvious to one of ordinary skill in art at the time of the invention was made to employ distance measuring teachings of Badano in the radiographic imager of Hilton since this is how ultrasonic distance sensors work.

With respect to claims 11 and 15, Badano shows (Fig. 7) computer (72) connected by a connected cable (78) that would allow controlling the ultrasonic radiated signal source (44) between an operative and an inoperative condition.

With respect to claims 13, 14, 21 and 22, Badano shows computer (72) operatively associated with the radiated signal source (44) and the detector (32a). Further, Badano teaches that the numerous emitters and receivers make it possible, by triangulation calculations, to perform three-dimensional measurements (column 2; lines 47-54) that would allowing determine distance between the two selected points (the radiation beam source and the image receptor), even determine distance with the reflected signal.

With respect to claim 16, Badano shows a display (76) connected to a computer (72) that would allow displaying and continuously updating the distance between the two selected points.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irakli Kiknadze whose telephone number is 571-272-2493. The examiner can normally be reached on 9:00- 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Irakli Kiknadze
January 20, 2004
IK

Craig E. Church
Primary Examiner